jours, puis nous avons réduit le temps de traitement. Tous les malades traités, contrôlés, ont été négativés dès le premier examen, même ceux qui ne reçurent que 25 mg/kg/jour pendant 4 jours. Nous estimons toutefois qu'il y a lieu de préconiser un traitement de 5 jours au moins pour éviter la possibilité d'une rechute par le cycle direct tissulaire des larves (auto infestation). La tolérance du médicament a toujours été bonne. Il fut appliqué en deux prises journalières, accompagnées d'un comprimé de phénergan à la prise du matin.

L'essai thérapeutique a porté sur 12 malades qui ont tous favorablement réagi au traitement. Les selles furent toujours soigneusement contrôlées après le traitement; elles furent toutes négatives dès le premier contrôle, une semaine après le traitement.

Un malade revu 7 mois, 2 autres 8 mois après le traitement étaient toujours négativés. Sur trois malades revus 7 mois après le traitement nous avons observé une rechute ou réinfestation. Ce malade traité à nouveau pendant 6 jours s'est négativé, comme lors du premier traitement. Chez un malade contrôlé 8 mois après le traitement, toujours négatif à la recherche des larves d'anguillules, nous avons trouvé la présence d'œufs d'ascaris en nombre considérable dans les selles; traité pendant 5 jours à raison de 25 mg/kg/jour de CIBA 32.644-Ba, nous n'avons plus retrouvé d'œufs d'ascaris 8 jours et 14 jours après la fin du traitement. La négativation des selles s'est toujours accompagnée d'une rétrocession des douleurs abdominales et des lombalgies associées. Les malades prétendent avoir retrouvé l'appétit et signalent tous un mieux être réel.

Conclusion. Nous rapportons les résultats de 12 malades atteints d'anguillulose traités par le CIBA 32.644-Ba par voie orale, à la dose de 25 et 30 mg/kg/jour pendant 4, 5 ou 7 jours consécutifs, en deux prises journalières. La guérison clinique et parasitologique apparaît constante, rapide et durable pour ceux qui échappent à une réinfestation. Notre intention en présentant ces quelques cas d'anguillulose et d'ascaridiose traités avec succès par l'Ambilhar® est de faire apparaître le large champ d'action de ce médicament, sur un certain nombre de parasitoses endémiques en zone tropicale. Son utilisation en campagne de masse sera très précieuse du fait de cette polyvalence et permet d'augurer des possibilités d'éradication de certaines de ces parasitoses, en associant au traitement, la prophylaxie et la lutte contre le péril fécal.

Summary. Report of the results of 12 patients suffering from an obstinate enteritis with *Strongyloïdes stercoralis*, who were treated with nitrothiamidazole (CIBA 32.644-Ba) Ambilhar® by the oral duct in 2 doses of 25–30 mg/kg/day for 4, 5 or 7 consecutive days. The clinical and parasitological recovery seems to be constant, quick, and lasting for those who escape a re-infestation.

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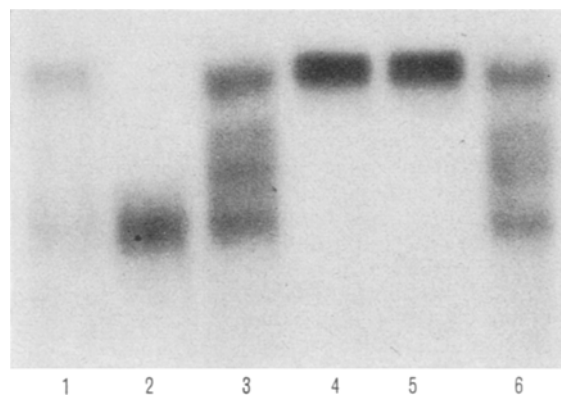
Hybridization Studies in the Further Characterization of Erythrocyte Glucose-6-Phosphate Dehydrogenase

Erythrocyte glucose-6-phosphate dehydrogenase (G-6-PD) can be disassociated into smaller subunits of approximately equal size by removal of triphosphopyridine nucleotide (TPN). Preliminary terminal amino acid determinations have suggested that two different polypeptide chains are involved[1]. However, similar results have been obtained if the preparation, although highly purified, contained traces of contaminating protein. We have recently been able to hybridize human G-6-PD with rat enzyme, producing a hybrid band of intermediate electrophoretic mobility[2]. The presence of a single hybrid band could be interpreted as indicating that the charge difference between two dissimilar rat polypeptide chains was the same as the difference between the two human chains, so that the mobility of the two hybrids was identical. Alternately, it might be interpreted as indicating that each protein represented a polymer of identical polypeptide chains, so that only one hybrid was formed.

It has now been possible to hybridize bovine and rat G-6-PD, producing 4 distinct bands. These species were selected for further hybridization studies, since they represented extremes of electrophoretic mobility of readily available species. Each enzyme was purified by the method of Kirkman to the first ammonium sulfate step. Mixtures of rat and bovine enzyme were then dialyzed together against phosphate buffer containing mercaptoethanol, but lacking TPN. Electrophoresis was carried out as described previously[3]. As shown in the Figure, 2 new bands appeared in positions intermediate between the rapidly moving rat enzyme and the slowly moving bovine enzyme.



Starch gel electrophoresis of bovine and rat G-6-PD stained histochemically for the enzyme. The origin is at the bottom; highest potential (+) at the top. Channel 1: Bovine and rat G-6-PD mixed after separate dialysis. Channel 2: Dialyzed bovine enzyme. Channels 4 and 5: Dialyzed rat enzyme. Channels 3 and 6: Bovine and rat enzyme mixed prior to dialysis.

1 A. E. Chung and R. G. Langdon, J. biol. Chem. *238*, 2309 (1963).
2 E. Beutler and Z. Collins, Science *150*, 1306 (1965).
3 C. K. Mathai, S. Ohno, and E. Beutler, Nature *210*, 115 (1966).

These results are compatible with the presence of 2 different amino acid chains in each type of erythrocyte enzyme. It is also possible to explain the appearance of these bands in terms of a development of polymers containing 1 rat unit and 3 bovine units on the one hand, but 3 bovine units and 1 rat unit on the other. In such an instance, however, a fifth band containing 2 bovine and 2 rat units could be anticipated. We thus consider it most probable to be that the enzyme normally contains 2 different polypeptide chains. If the enzyme is normally a dimer, the rat enzyme might then be designated $\alpha^R\varepsilon^R$, the normal bovine enzyme $\alpha^B\varepsilon^B$, and the 2 hybrids $\alpha^R\varepsilon^B$ and $\alpha^B\varepsilon^R$. Since all known mutations involving G-6-PD a e sex-linked and no hybrid enzyme is formed through interspecific matings, it would appear that both genes are on the X-chromosome and probably very closely linked[4].

Zusammenfassung. Die Hybridisierung von Ratten- und Rinder-Glukose-6-Phosphat Dehydrogenase ergibt 2 Hybride, was darauf hindeutet, dass das Enzym in beiden Gattungen ein Polymer von verschiedenen Aminosäureketten ist.

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Division of Medicine, City of Hope Medical Center, Duarte (California, USA), August 19, 1966.

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Occurrence of Microvilli-Like Structures in the Gut of Digenetic Trematodes

During a comparative survey of nutrition in the Trematoda it was found that the gastrodermis of 7 species of Digenea examined bear filamentous outgrowths, reminiscent in most instances of the microvilli present in the vertebrate gut. These outgrowths may be of varying length from 1–15 μ, as in *Haematoloechus medioplexus*, *Haplometra cylindracea*, *Opisthioglyphe ranae*, and *Schistosoma mansoni*, or they may be more uniform in appearance and organized into a definite striated border, 15–20 μ high, as in *Diplodiscus subclavatus* (Figure 1), *Gorgoderina vitelliloba* and *Gorgodera cygnoides*.

Similar structures have been described in *Dasymetra villicaeca*[1], *Fasciola hepatica* (various authors summarized by DAWES[2]), *Cleptodiscus reticulatus* and *C. kyphosi*[3], so that they would appear to be a characteristic feature of the Digenea.

In all the specimens of the 7 species examined the outgrowths stain very poorly with most counterstains, such as eosin or light green, often to the extent that they give the appearance of being separate from the underlying gut cells. In addition they assume a deep pink colouration with the PAS technique, and also give a positive reaction for acid phosphatase, whereas the cells hardly stain at all. On the other hand, with Mallory's trichrome stain, the outgrowths are clearly visible, under oil immersion, as individual structures the surfaces of which are covered by a thin blue staining layer surrounding a yellowish core which is directly continuous with the cytoplasm of the rest of the cell.

In *D. subclavatus*, electron microscope observations on the outgrowths confirm those made with Mallory's stain under oil immersion, and show the projections to be uniform in appearance, orientated parallel to each other and perpendicular to the cell surface (Figure 2). Each projection is seen to be composed of a core of undifferentiated cytoplasm surrounded by a true outer membrane which is continuous with the plasma memb ane of the cell. Electron micrographs also confirm the absence of basal bodies, or blepharoplasts, from the cytoplasm beneath the processes, indicating that these cellular extensions are not actively motile cilia and therefore not concerned with creating currents for movement of the gut contents. This is only to be expected in view of the infrequent occurrence of ciliated structures throughout the adult Trematoda. The electron micrographs also make possible approximate estimates of the number of processes present,

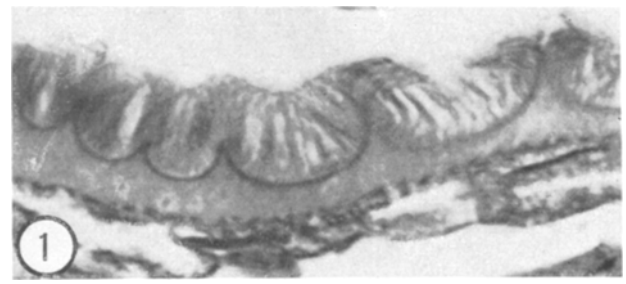

Fig. 1. A longitudinal section through part of the gastrodermis of *Diplodiscus subclavatus* showing the microvilli-like outgrowths. Periodic acid-Schiff (PAS) and light green. × 600.

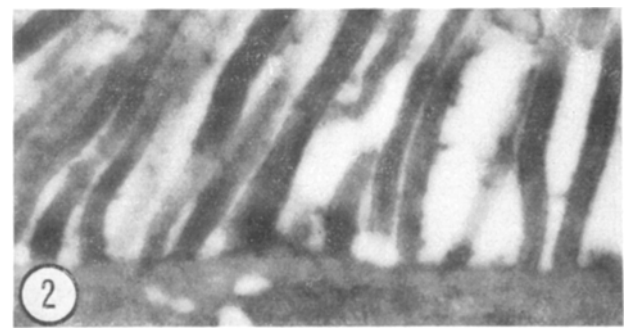

Fig. 2. An electron micrograph of part of a gastrodermal cell in *D. subclavatus* showing the origin and basal region of the microvilli. × 50,000.

[1] E. E. BYRD, Trans. Am. micr. Soc. *54*, 196 (1935).
[2] B. DAWES, Parasitology *52*, 483 (1962).
[3] R. M. WOTTON and F. SOGANDARES-BERNAL, Parasitology *53*, 157 (1963).